

Including EPI distortion corrected files when using the Data Analysis Manager: temporary solution

BrainVoyager version: 22.2
Latest update: 26 January 2022



Summary

Preparation

1. Create the documents via DICOM to NIFTI
2. Create a first functional preprocessing workflow with just one or some of the preprocessing functions
3. Create a second functional preprocessing workflow with the remaining preprocessing functions
4. Edit the workflowinfo *.json file of the second functional preprocessing workflow

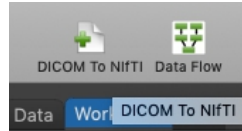
Execution

5. Run the first preprocessing workflow
6. Run EPI distortion correction on the FMR data in the first preprocessing workflow folder
7. Run the second preprocessing workflow (and remaining workflows)

Detailed directions

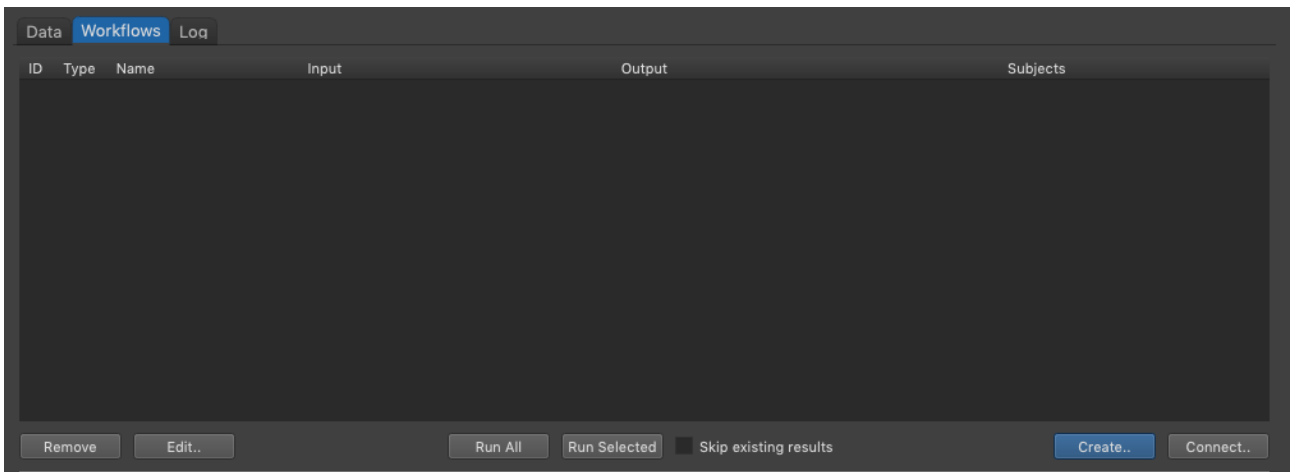
1. Create the documents via DICOM to NIFTI

using the DICOM To NIFTI icon. The resulting *.nii.gz and *.json data will reside in the folder /(My) Documents/BrainVoyager/Projects/<project name>/sourcedata/sub-01/ses-01/func/.

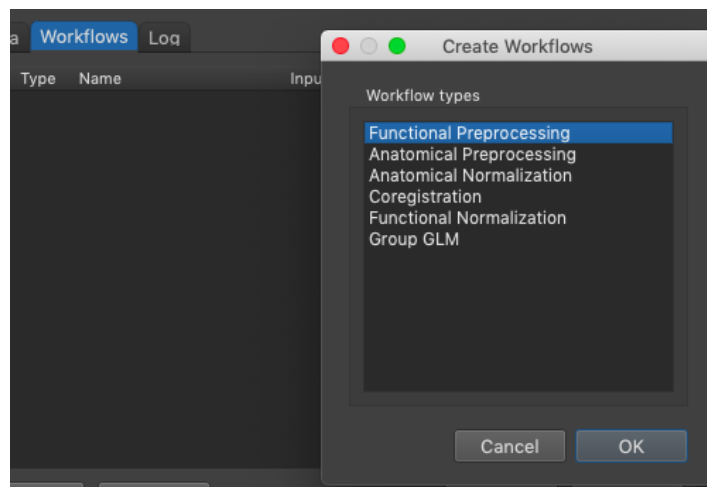


2. Create a first functional preprocessing workflow

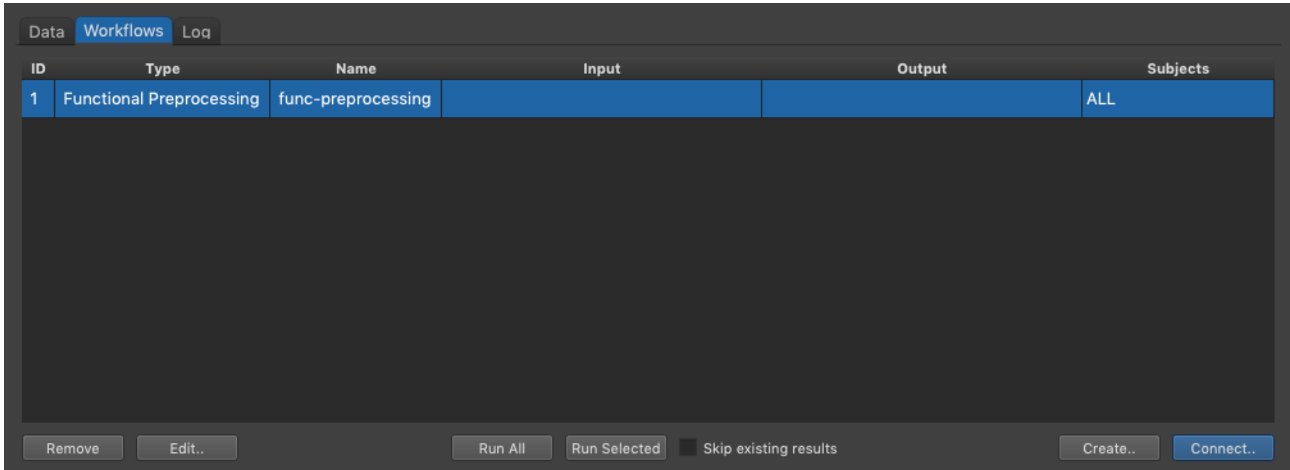
with just one or some of the preprocessing functions (excluding spatial smoothing). This process will take the NIFTI/BIDS files as input and output FMR files. Go to the tab "Workflow" and click the "Create" button.



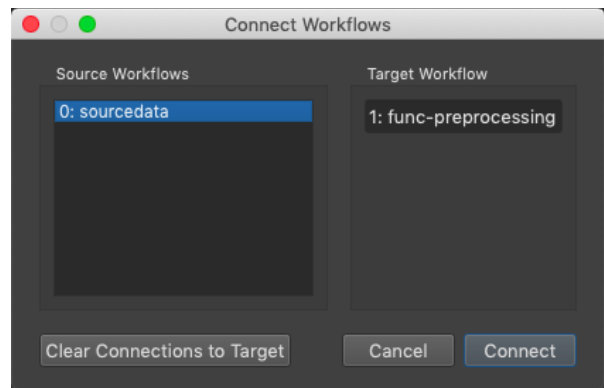
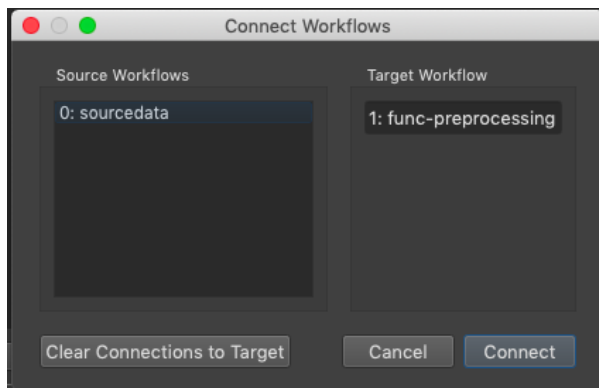
In the dialog, click on the "Functional preprocessing" text so that it is bright blue and click "OK".



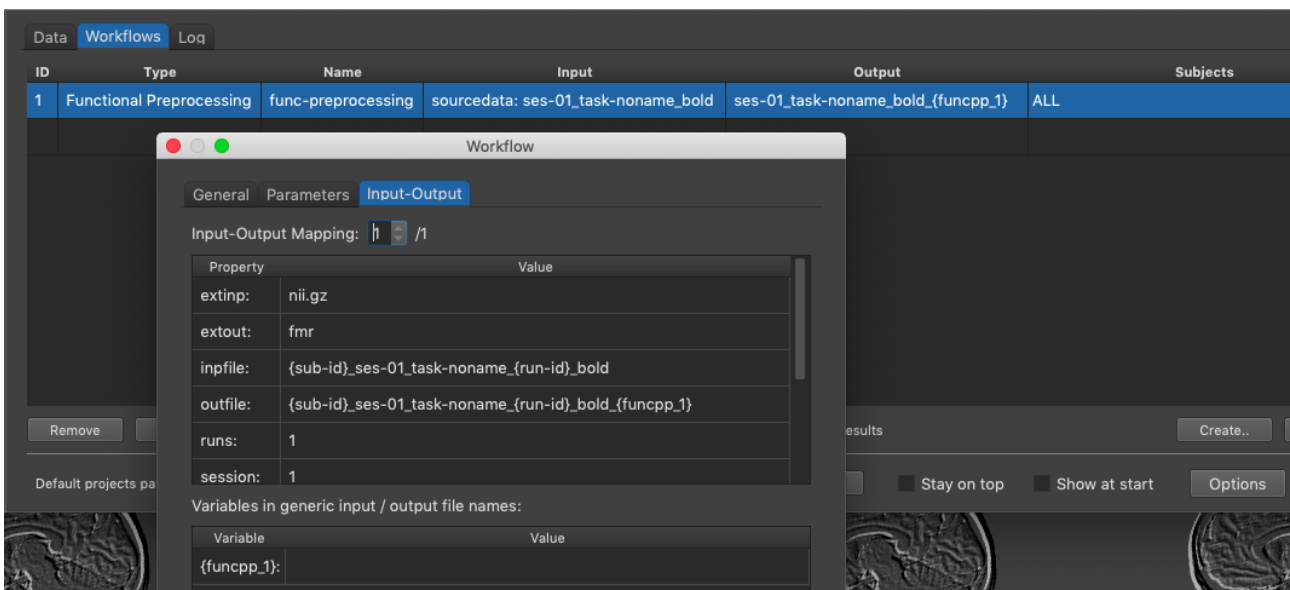
The workflow is now available, but the "Input" and "Output" fields are empty.



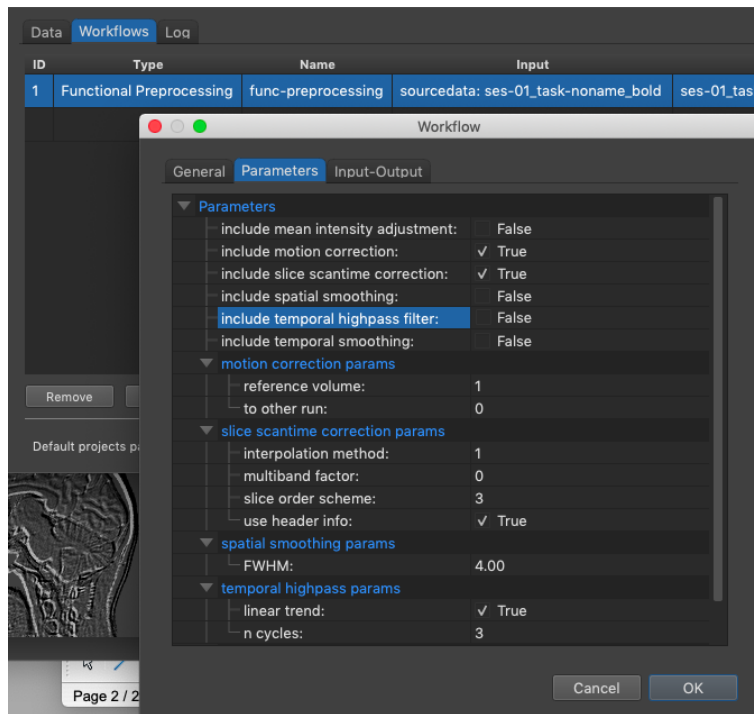
Click on "Connect" to connect to the NIFTI/BIDS sourcedata. Click on "sourcedata" so that it is bright blue and click "Connect".



The "Input" and "Output" fields are now filled. Via the "Edit" button we see in the Workflow details that the input data are *.nii.gz format ("extinp") and the file extension of the output data ("extout") are *.fmr.

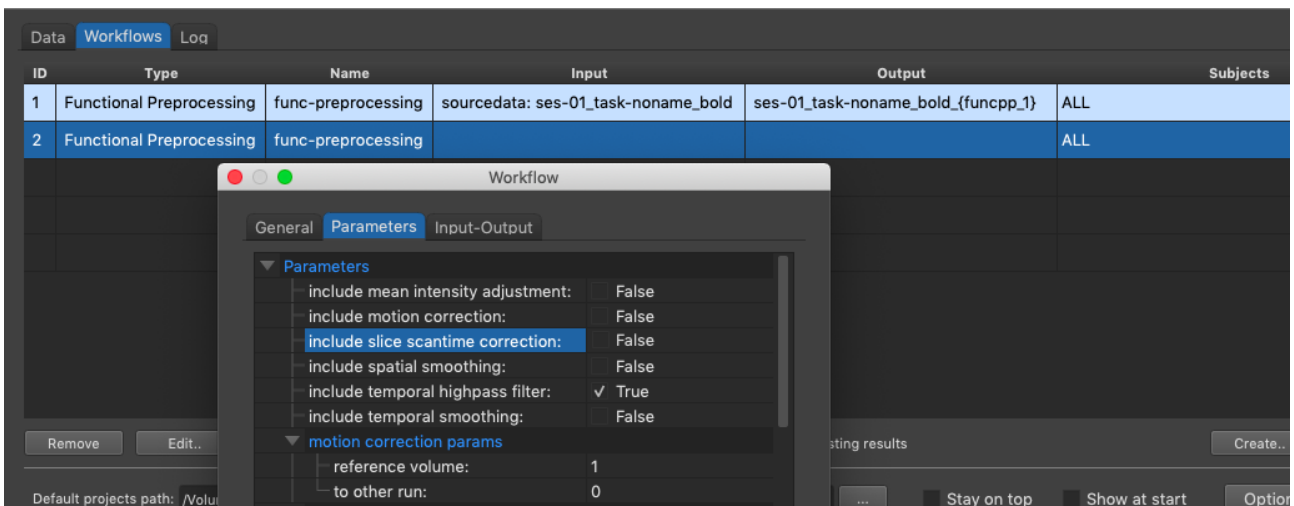


In the "Parameters" tab, set the required preprocessing functions to True, for example motion correction and slice scan time correction and click "OK".

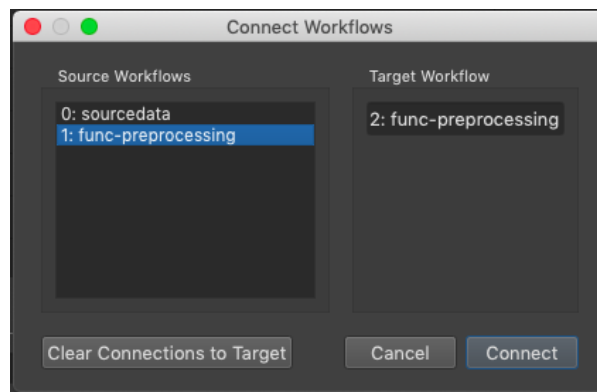


3. Create a second functional preprocessing workflow

with the remaining preprocessing functions: click the "Create" button again in the "Workflows" tab, and select "Functional preprocessing" in the appearing dialog. Check the remaining preprocessing methods; here the temporal high pass filtering is selected.



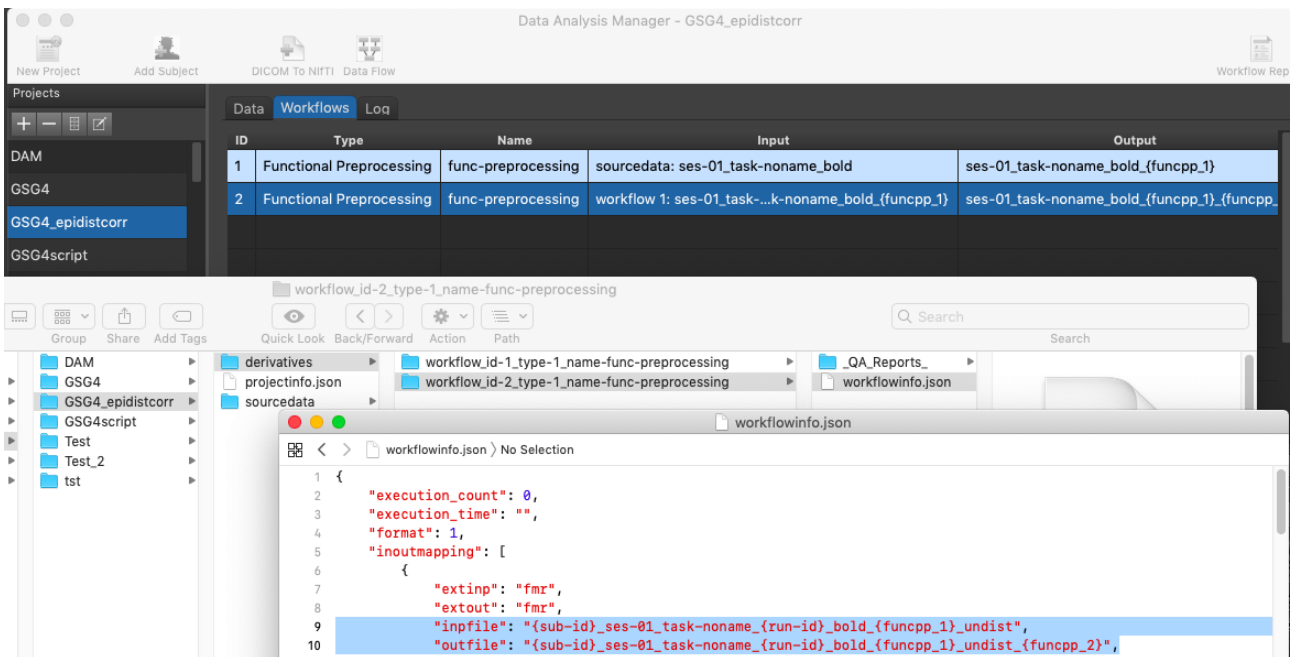
Select the second preprocessing workflow and click the "Connect" button. In the appearing window, select "func-preprocessing", to use the data resulting from the first functional preprocessing workflow, and click "Connect".



Now the "Input" and "Output" fields of both workflows are filled with prospective data names.

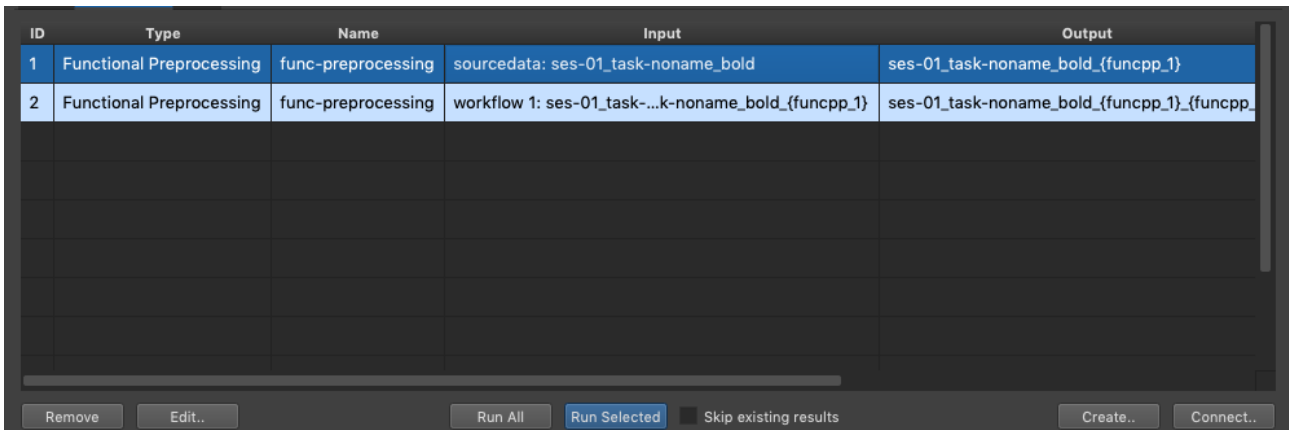
ID	Type	Name	Input	Output	Subjects
1	Functional Preprocessing	func-preprocessing	sourcedata: ses-01_task-noname_bold	ses-01_task-noname_bold_{funcpp_1}	ALL
2	Functional Preprocessing	func-preprocessing	workflow 1: ses-01_task-noname_bold_{funcpp_1}	ses-01_task-noname_bold_{funcpp_1}_{funcpp_2}	ALL

4. Edit the workflowinfo.json file of the second functional preprocessing workflow adding "_undist" when using COPE or "_undistort" when using anatabacus to the "inppfile" and "outfile" fields in the workflowinfo.json file in the folder with workflow id 2: /workflow_id-2_type-1_name-func-preprocessing/.



5. Run the first preprocessing workflow

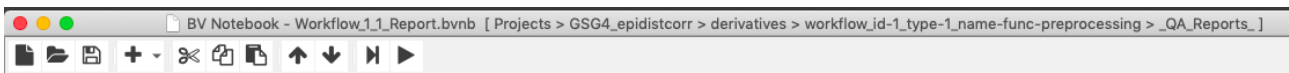
by selecting the first workflow and using the button "Run selected". The resulting files can be found in the folder data will reside in the folder /(My) Documents/BrainVoyager/Projects/<project name>/derivatives/workflow_id-1_type-1_name-func-preprocessing/sub-01/ses-01/func/.



ID	Type	Name	Input	Output
1	Functional Preprocessing	func-preprocessing	sourcedata: ses-01_task-noname_bold	ses-01_task-noname_bold_{funcpp_1}
2	Functional Preprocessing	func-preprocessing	workflow 1: ses-01_task-...k-noname_bold_{funcpp_1}	ses-01_task-noname_bold_{funcpp_1}_{funcpp_1}

Remove Edit.. Run All Run Selected Skip existing results Create.. Connect..

A workflow report should appear.



Workflow Report

Project: GSG4_epidistcorr

Workflow: Functional preprocessing

Workflow folder: workflow_id-1_type-1_name-func-preprocessing

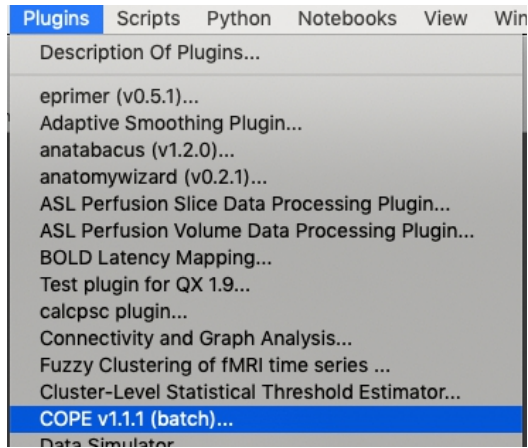
Parameters:

Parameter	Value
include mean intensity adjustment:	no
include motion correction:	yes
include slice scantime correction:	yes
include spatial smoothing:	no
include temporal highpass filter:	no
include temporal smoothing:	no
motion correction params	
- reference volume:	1
- to other run:	0

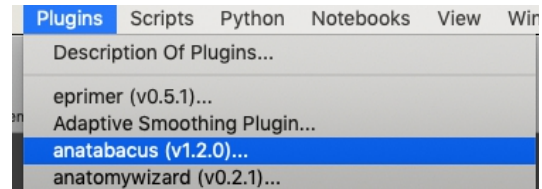
6. Perform EPI distortion correction

on the FMR data in the first preprocessing workflow folder via the fieldmap-based EPI distortion correction plugin "anatabacus" or via the image registration-based EPI distortion correction plugin "COPE". For anatabacus, one needs magnitude and phase files (*.fmr). For COPE, EPI data in AP and PA phase encoding direction are required.

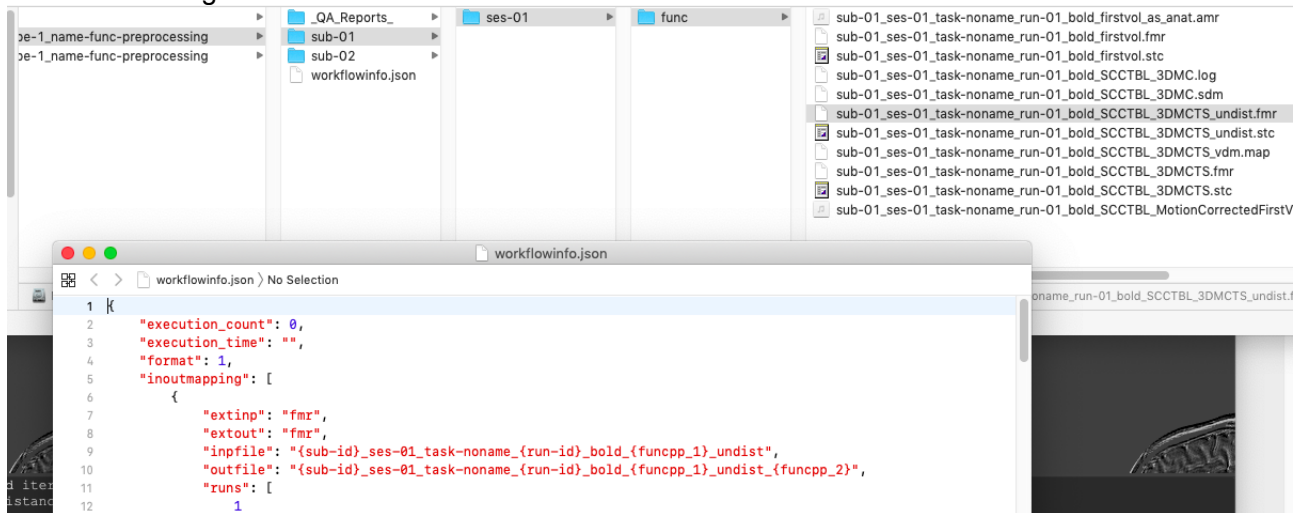
Image-registration based EPI distortion correction



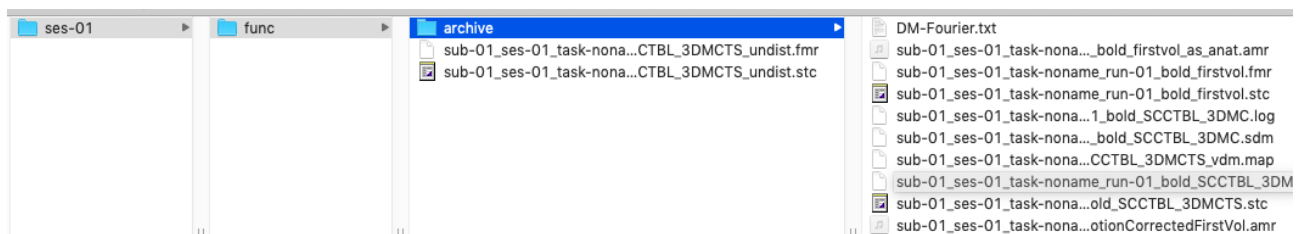
Fieldmap-based EPI distortion correction



And the resulting files:

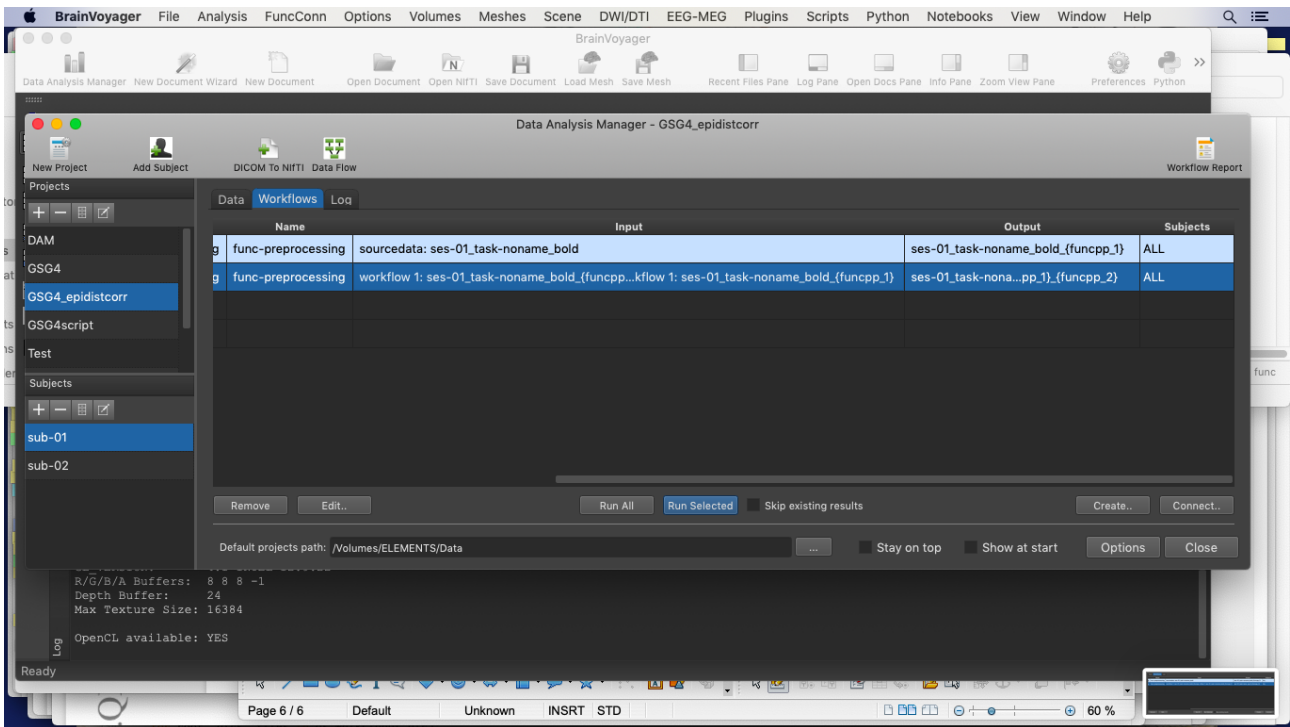


Perhaps place all *_undistort.fmr/stc files in a subfolder (in the screen capture below, the files are placed in "archive").

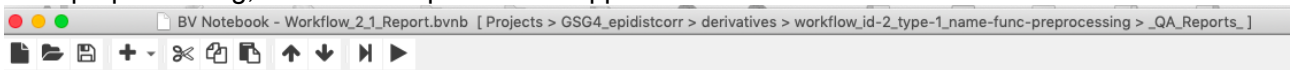


Perhaps close BrainVoyager and re-open.

7. Run the second preprocessing workflow
by clicking the "Run selected" button.



After preprocessing, a workflow report should appear.



Workflow Report

Project: GSG4_epidistcorr

Workflow: Functional preprocessing

Workflow folder: workflow_id-2_type-1_name-func-preprocessing

Parameters:

Parameter	Value
include mean intensity adjustment:	no
include motion correction:	no
include slice scantime correction:	no
include spatial smoothing:	no
include temporal highpass filter:	yes
include temporal smoothing:	no
motion correction params	

and the preprocessing has been recorded in the Log:

